

Draft HEA Habitat Values for ESA Consultation			
Habitat	Habitat Characteristics	Yrs Until Full Function	Salmonid Value
Riparian	naturally vegetated forest, <400 ft from ACM ¹	40 ²	0.5
	and in the historic floodplain	40 ²	0.65
	naturally vegetated, grass/shrub	5	0.2
	and associated with historic floodplain	5	0.35
	invasive species ³	3	0.1
	vegetated riprap	NA	0.05
	unvegetated/paved/buildings/riprap	NA	0
Active channel margin	sloped (<5:1 or 11°), unarmored and vegetated ⁴	3	1
	sloped (>5:1 or 11°), unarmored and vegetated ⁴	3	0.8
	sloped (<5:1), unarmored and unvegetated	3	0.8
	sloped (>5:1), unarmored and unvegetated	1	0.1
	sloped (<5:1), bio-engineered	3	0.2
	sloped (>5:1), bio-engineered	3	0.2
	riprapped	NA	0
	sheetpile	NA	0
	pilings	NA	1/2 value of margin type
	covered structures over channel margins ⁵	NA	0.1
Main channel	shallow water, gravel and finer substrates	1	1 (0.9)
	shallow water, natural rock outcrop ⁶	NA	1 (0.9)
	shallow water with riprap or concrete	NA	0.1 (0.1)
	shallow water with covering structures ⁵	NA	0.1 (0.1)
	shallow water with pilings	NA	1/2 value of channel type
	deep water with natural substrates	1	0.1
	deep water with artificial substrates	NA	0.05
Off channel	"cold" water tributary	1	1
	"warm" water tributary	1	0.9
	side channel	1	1
	alcove or slough with tributary	1	1 ⁷
	alcove or slough without tributary	1	0.8
	embayment (cove) with tributary	1	1 ⁷
	embayment (cove) without tributary	1	0.8 ⁸

¹ ACM = active channel margin

² achieves 80% of full function within 10 years; this time is adequate because of flood protection

³ eg. Himalayan blackberry

⁴ native species, value is 1/2 the value listed if vegetated with invasive species

⁵ eg. docks

⁶ cannot be created

⁷ value is 0.9 for salmonid adults if "warm" water tributary

⁸ value is around 0.6 further upstream

Notes:

- The listed habitat values are for Portland Harbor. Areas outside Portland Harbor may have different values for some species, or no value for some species. In such cases, multiple projects may be needed to fully mitigate for the effects of an action on all species affected.
- Debits and credits for a given project need to come from the same habitat category (eg. main channel), unless credits come from creating off channel habitat because it is a primary limiting factor for salmonids.
- No credit will be given for creating any new habitat with riprap, artificial substrates, pilings or covering structures.
- Credit for simply removing pilings is limited to 0.1 and for removing covering structures is limited to 0.5.
- For ESA purposes, shallow water habitat is defined as <20 feet of water depth as measured at the ordinary low water level. The value listed in the table is for shallow water habitat 0-10 feet in depth and the value in parentheses next to it is for shallow water habitat 10-20 feet in depth.
- Bio-engineering is defined as the use of living and nonliving plant materials in combination with natural and synthetic support materials for slope stabilization, erosion reduction, and vegetative establishment. To receive credit for bio-engineered ACM, the treatments may include inert components and grading but they must fundamentally rely on riparian plants to provide long term strength to the bank. Inert material may be used but generally only to temporarily reduce hydraulic pressures so that the planted live material can become established. NMFS must approve any proposal for bio-engineered ACM for credit to be given.

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Appendix 2. Arkema site salmonid habitat survey observations and photographic log, July 6, 2010										
Area	Station Number ^a	Photo Sequence Number ^a	Riparian Vegetation ^b	Vegetation Type Native/Invasive (N/I)	Active Channel Margin Armoring	Soil or Debris/Fill Type	Structures	Woody Material	Latitude	Longitude
1 Salt Pad	Station 00 ^c	Upstream: 1-2, 4-5, 9 Downstream: 7-8, 10-11 Toward River: 3, 6	Scotch broom (<i>Cytisus scoparius</i>), grasses	N, I	A, U	Gravel with some soil (note: station located at top of bank)	None	No	45.570173507	-122.741233037
1 Salt Pad	Station 01	Upstream: 12-14 Downstream: 15-17 Upslope: None Sign on beach: 18	Trace of grasses	N, I	A, U	Sand with a trace of gravel near the water line. Slope is mostly rock	None	Yes. Few logs, wood debris	45.568879803	-122.740546570
1 Salt Pad	Station 02	Upstream: 19-20 Downstream: 21-23 Upslope: None	Trace of grasses, Himalayan blackberry (<i>Rubus discolor</i>)	N, I	A, U	Rock with sand only present near the station	None	Yes. Few logs, trace of wood debris	45.569019836	-122.740546506
1 Salt Pad	Station 03	Upstream: 24 Downstream: 26 Upslope: 25	Trace of grasses, Himalayan blackberry (<i>Rubus discolor</i>)	N, I	A, U	Rock and concrete debris	None	Yes. Trace of wood debris	45.569110307	-122.740389102
1 Salt Pad	Station 04	Upstream: 27 Downstream: 28 Upslope: 29	Common vetch (<i>Vicia sativa</i>), Spring gold (<i>Lomatium utriculatum</i>), grasses	N, I	A, U	Rock and concrete debris	None	Yes. Trace of wood debris	45.569205798	-122.740264209
1 Salt Pad	station 05	Upstream: 30 Downstream: 31 Upslope: 32	Himalayan blackberry (<i>Rubus discolor</i>), Common vetch (<i>Vicia sativa</i>), Common St. Johns Wort (<i>Hypericum anagalloides</i>), grasses	I	A, U	Rock and concrete debris	None	Yes. Trace of wood debris	45.569319780	-122.740175128
1 Salt Pad	station 06	Upstream: 33 Downstream: 34 Upslope: 35	Himalayan blackberry (<i>Rubus discolor</i>), Spring gold (<i>Lomatium utriculatum</i>), grasses, small unidentified shrubs	N, I	A, U	Rock and concrete debris	Salt dock	Yes. Trace of wood debris	45.569482871	-122.740176697
1 Salt Pad	station 07	Upstream: 36 Downstream: 37 Upslope: 38	Himalayan blackberry (<i>Rubus discolor</i>), Common vetch (<i>Vicia sativa</i>), Common St. Johns Wort (<i>Hypericum anagalloides</i>), grasses	I	A, U	Rock and concrete debris up to 3-4' across	Salt dock	Yes. Some logs and wood debris	45.569597475	-122.740293344
1 Salt Pad	station 08	Upstream: 39 Downstream: 40 Upslope: 41	Himalayan blackberry (<i>Rubus discolor</i>), Common vetch (<i>Vicia sativa</i>), Paper birch (<i>Bitula papyrifera</i>), grasses	N, I	A, U	Rock with some coarse gravel	Salt dock	Yes. Some logs and wood debris	45.569702224	-122.740397484
1 Salt Pad	Station 09	Upstream: 42 Downstream: 43 Upslope: 44-45	Himalayan blackberry (<i>Rubus discolor</i>), grasses, Common vetch (<i>Vicia sativa</i>)	N, I	A, U	Gravel and rock/concrete debris	Salt dock	Yes. Some wood debris	45.569793403	-122.740486290
1 Salt Pad	station 10	Upstream: 46 Downstream: 47 Upslope: 48	Himalayan blackberry (<i>Rubus discolor</i>), grasses	N, I	A, U	Coarse concrete debris with some rebar	Salt dock	Yes. Trace of wood debris	45.569912751	-122.740648775
1 Salt Pad	station 11	Upstream: 49 Downstream: 50 Upslope: 51	Himalayan blackberry (<i>Rubus discolor</i>), Common St. Johns Wort (<i>Hypericum anagalloides</i>), grasses, ferns	N, I	A, U	Coarse concrete debris, metal debris	None	No	45.569999189	-122.740779715
1 Salt Pad	station 12	Upstream: 52 Downstream: 53 Upslope: 54	Himalayan blackberry (<i>Rubus discolor</i>), Common vetch (<i>Vicia sativa</i>), grasses, Paper birch (<i>Bitula papyrifera</i>)	N, I	A, U	Coarse concrete debris	Historical 4 piling dolphin in river approximately 20' from water line	Yes. Some logs amid wood debris	45.570089803	-122.740932245
1 Salt Pad	station 13	Upstream: 55 Downstream: 56 Upslope: 57	Himalayan blackberry (<i>Rubus discolor</i>), Scotch broom (<i>Cytisus scoparius</i>), Common vetch (<i>Vicia sativa</i>), grasses	I	A, U	Coarse concrete debris, metal debris	None	Yes. Trace of wood debris	45.570197923	-122.741050760
1 Salt Pad	station 14	Upstream: 58 Downstream: 59 Upslope: 60	Common vetch (<i>Vicia sativa</i>), grasses	N, I	A, U	Coarse concrete debris, metal debris	None	Yes. One log, trace of wood debris	45.570309686	-122.741163464
1 Salt Pad	Station 15	Upstream: 61 Downstream: 62 Upslope: 63	Himalayan blackberry (<i>Rubus discolor</i>), English daisy (<i>Bellis perennis</i>), Scotch broom (<i>Cytisus scoparius</i>)	I	A, U	Coarse concrete debris	Outfall 001 and associated pilings	Yes. Few logs	45.570438814	-122.741270825

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1 Salt Pad	station 16	Upstream: 64 Downstream: 65 Upslope: 66	Grasses, Sitka willow (<i>Salix sitchensis</i>), Common vetch (<i>Vicia sativa</i>), Scotch broom (<i>Cytisus scoparius</i>)	N, I	A, U	Coarse concrete debris	Outfall 001	Yes. Some large logs	45.570537324	-122.741379524
2 Docks 1&2	station 17	Upstream: 67 Downstream: 68 Upslope: 69	Himalayan blackberry (<i>Rubus discolor</i>), Scotch broom (<i>Cytisus scoparius</i>), grasses	N, I	A, U	Coarse concrete debris	Outfall 001	Yes. Some logs and wood debris	45.570605754	-122.741554782
2 Docks 1&2	station 18	Upstream: 70 Downstream: 71 Upslope: 72	Himalayan blackberry (<i>Rubus discolor</i>), Common vetch (<i>Vicia sativa</i>), Scotch broom (<i>Cytisus scoparius</i>), unidentified grasses	I	A, U	Rock and concrete debris	Outfall 001, Dock 1	Yes. Abundant logs and wood debris	45.570724727	-122.741675257
2 Docks 1&2	station 19	Upstream: 73 Downstream: 74 Upslope: 75-76	Himalayan blackberry (<i>Rubus discolor</i>), Common vetch (<i>Vicia sativa</i>), Scotch broom (<i>Cytisus scoparius</i>),	I	U, U	Sand with some gravel and brick/concrete debris	Outfall 001, Dock 1	Yes. Abundant logs		
2 Docks 1&2	station 20	Upstream: 77 Downstream: 78 Upslope: 79	Himalayan blackberry (<i>Rubus discolor</i>), Scotch broom (<i>Cytisus scoparius</i>), Pacific willow (<i>Salix lucida</i>), Common vetch (<i>Vicia sativa</i>)	N, I	U, U	Sand with gravel and brick debris near the water line; rock near the toe of slope	Parshall flume for Outfall 001, Dock 1	Yes. Some logs	45.570901006	-122.741966454
2 Docks 1&2	station 21	Upstream: 80 Downstream: 81 Upslope: 82	Himalayan blackberry (<i>Rubus discolor</i>), Scotch broom (<i>Cytisus scoparius</i>), Pacific willow (<i>Salix lucida</i>)	N, I	U, U	Sand near water line; rock and concrete debris near toe of slope	Dock 1	Yes. Some logs and wood debris	45.570973475	-122.742118027
2 Docks 1&2	station 22	Upstream: 83 Downstream: 84 Upslope: 85	Himalayan blackberry (<i>Rubus discolor</i>), Scotch broom (<i>Cytisus scoparius</i>)	I	U, U	Sand near water line; rock and concrete debris near toe of slope	Square concrete structure approximately 5' square and 15' tall near toe of slope, Dock 1	Yes. Abundant logs near toe of slope	45.571050809	-122.742264897
2 Docks 1&2	station 23	Upstream: 86 Downstream: 87 Upslope: 88	Himalayan blackberry (<i>Rubus discolor</i>), Pacific willow (<i>Salix lucida</i>), Scotch broom (<i>Cytisus scoparius</i>), grasses	N, I	A, U	Sand near water line; rock and concrete debris near toe of slope	Dock 1	Yes. Trace of logs	45.571135963	-122.742396703
2 Docks 1&2	station 24	Upstream: 89 Downstream: 90 Upslope: 91	Himalayan blackberry (<i>Rubus discolor</i>), Pacific willow (<i>Salix lucida</i>)	N, I	A, U	Large concrete debris	Dock 1	Yes. Trace wood debris	45.571224470	-122.742499347
2 Docks 1&2	station 25	Upstream: 92 Downstream: 93 Upslope: 94	Himalayan blackberry (<i>Rubus discolor</i>), English ivy (<i>Hedera helix</i>)	I	A, U	Large concrete debris	Dock 1	Yes. Trace wood debris	45.571356945	-122.742579144
2 Docks 1&2	station 26	Upstream: 95 Downstream: 96 Upslope: 97	Himalayan blackberry (<i>Rubus discolor</i>)	I	A, U	Rock, concrete, and metal debris	None	Yes. Trace logs and wood debris	45.571471030	-122.742707936
2 Docks 1&2	station 27	Upstream: 98 Downstream: 99 Upslope: 100	Scotch broom (<i>Cytisus scoparius</i>), Himalayan blackberry (<i>Rubus discolor</i>), Common vetch (<i>Vicia sativa</i>), Sitka willow (<i>Salix sitchensis</i>)	N, I	A, U	Rock and concrete debris	Parshall flume for Outfall 002	Yes. Trace of wood debris	45.571575727	-122.742821277
2 Docks 1&2	station 28	Upstream: 101 Downstream: 102 Upslope: 103	Common vetch (<i>Vicia sativa</i>), English daisy (<i>Bellis perennis</i>), Himalayan blackberry (<i>Rubus discolor</i>)	I	A, U	Rock and concrete debris	Outfall 002 and associated Parshall flume	Yes. Trace wood debris	45.571657624	-122.742975519
2 Docks 1&2	station 29	Upstream: 104 Downstream: 105 Upslope: 106	Himalayan blackberry (<i>Rubus discolor</i>), English daisy (<i>Bellis perennis</i>), grasses, Sitka willow (<i>Salix sitchensis</i>)	N, I	A, U	Large concrete debris, brick debris	None	Yes. Some logs	45.571704101	-122.743148670
2 Docks 1&2	station 30	Upstream: 107 Downstream: 108 Upslope: 109	Pacific willow (<i>Salix lucida</i>), grasses, English daisy (<i>Bellis perennis</i>), Common St. John's wort (<i>Hypericum perforatum</i>)	N, I	A, U	Large concrete debris, brick debris	Dock 2	Yes. Few logs	45.571774119	-122.743298037

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2 Docks 1&2	station 31	Upstream: 110 Downstream: 111 Upslope: 112	Some Himalayan blackberry (<i>Rubus discolor</i>), Pacific willow (<i>Salix lucida</i>), grasses, Common vetch (<i>Vicia sativa</i>)	N, I	A, U	Gravel, brick, concrete debris, rock	Dock 2	Yes. Some logs and wood debris	45.571865521	-122.743440548
2 Docks 1&2	station 32	Upstream: 113 Downstream: 114 Upslope: 115	Himalayan blackberry (<i>Rubus discolor</i>), Pacific willow (<i>Salix lucida</i>), grasses	N, I	A, U	Gravel, brick, and concrete debris	Cable (approximately 1" diameter) from shore to dolphin on Dock 2, Dock 2	Yes. Abundant logs	45.571958036	-122.743576404
2 Docks 1&2	station 33	Upstream: 116 Downstream: 117 Upslope: 118-119	Scotch broom (<i>Cytisus scoparius</i>), Himalayan blackberry (<i>Rubus discolor</i>), Pacific willow (<i>Salix lucida</i>)	N, I	U, U	Sand with some rocks and concrete debris	Dock 2	Yes. Abundant logs and wood debris		
3 Lot 3	station 34	Upstream: 120 Downstream: 121 Upslope: 122	Himalayan blackberry (<i>Rubus discolor</i>), Bigleaf maple (<i>Acer macrophyllum</i>), Scotch broom (<i>Cytisus scoparius</i>)	N, I	U, U	Sand with some rocks and brick debris; rock and concrete debris at toe of slope	Parshall flume for Outfall 003, Dock 2	Yes. Some logs and wood debris	45.572116562	-122.743915006
3 Lot 3	station 35	Upstream: 123 Downstream: 124 Upslope: 125	Himalayan blackberry (<i>Rubus discolor</i>), Scotch broom (<i>Cytisus scoparius</i>), Sitka willow (<i>Salix sitchensis</i>)	N, I	U, U	Sand with some rock and brick debris near the water line	Outfall 003 and associated Parshall flume, Dock 2	Yes. Logs and wood debris	45.572182961	-122.744089117
3 Lot 3	station 36	Upstream: 126 Downstream: 127 Upslope: 128	Himalayan blackberry (<i>Rubus discolor</i>), Scotch broom (<i>Cytisus scoparius</i>), Sitka willow (<i>Salix sitchensis</i>)	N, I	U, U	Sand	Dock 2	Yes. Some logs and wood debris	45.572237487	-122.744270791
3 Lot 3	station 37	Upstream: 129 Downstream: 130 Upslope: 131	Himalayan blackberry (<i>Rubus discolor</i>), Scotch broom (<i>Cytisus scoparius</i>), grasses	N, I	U, U	Sand. Some concrete debris near toe of slope	Cable (approximately 1" diameter) from shore to dolphin on Dock 2	Yes. Some logs	45.572295965	-122.744430299
3 Lot 3	station 38	Upstream: 132 Downstream: 133 Upslope: 134	Himalayan blackberry (<i>Rubus discolor</i>), Scotch broom (<i>Cytisus scoparius</i>), grasses	N, I	U, U	Sand. Some concrete debris near toe of slope	Cable (approximately 1" diameter) from shore to dolphin on Dock 2	Yes. Some logs	45.572357186	-122.744571180
3 Lot 3	station 39	Upstream: 135 Downstream: 136 Upslope: 137	Himalayan blackberry (<i>Rubus discolor</i>), Scotch broom (<i>Cytisus scoparius</i>), grasses	N, I	U, U	Sand. Some concrete debris near toe of slope	Dock 2	Yes. Some logs	45.572435755	-122.744703008
3 Lot 3	station 40	Upstream: 138 Downstream: 139 Upslope: 140	Himalayan blackberry (<i>Rubus discolor</i>), Scotch broom (<i>Cytisus scoparius</i>), grasses	N, I	U, U	Sand. Some concrete debris near toe of slope	None	Yes. Some logs	45.572530863	-122.744828921
3 Lot 3	station 41	Upstream: 141 Downstream: 142 Upslope: 143	Himalayan blackberry (<i>Rubus discolor</i>), Sitka willow (<i>Salix sitchensis</i>), grasses	N, I	U, U	Sand. Some concrete debris near toe of slope	None	Yes. Some logs	45.572619997	-122.744934145
3 Lot 3	station 42	Upstream: 144 Downstream: 145 Upslope: 146	Himalayan blackberry (<i>Rubus discolor</i>), Common vetch (<i>Vicia sativa</i>)	I	U, U	Sand with some rock and concrete debris	Historical outfall pipe	Yes. Few logs	45.572725464	-122.745028263
3 Lot 3	station 43	Upstream: 147 Downstream: 148 Upslope: 149	Himalayan blackberry (<i>Rubus discolor</i>), Common vetch (<i>Vicia sativa</i>), Scotch broom (<i>Cytisus scoparius</i>)	I	A, U	Rock and concrete debris	Outfall 004 Parshall flume	Yes. Some wood debris	45.572838556	-122.745126528
3 Lot 3	station 44	Upstream: 150 Downstream: 151 Upslope: 152	Himalayan blackberry (<i>Rubus discolor</i>), Common vetch (<i>Vicia sativa</i>), Scotch broom (<i>Cytisus scoparius</i>)	I	A, U	Rock with brick debris and some sand	Outfall 004 and associated Parshall flume	Yes. Some logs and wood debris	45.572909689	-122.745297852
3 Lot 3	Station 45	Upstream: 153 Downstream: 154 Upslope: 155	Himalayan blackberry (<i>Rubus discolor</i>), Common vetch (<i>Vicia sativa</i>), Scotch broom (<i>Cytisus scoparius</i>)	I	U, U	Sand with some gravel and brick debris; concrete up to 4' long at toe of slope	None	Yes. Few logs	45.572957743	-122.745452715
3 Lot 3	station 46	Upstream: 156 Downstream: 157 Upslope: 158	Himalayan blackberry (<i>Rubus discolor</i>), Common vetch (<i>Vicia sativa</i>), Scotch broom (<i>Cytisus scoparius</i>)	I	PA, U	Sand with some gravel and brick debris; concrete up to 4' long at toe of slope	None	Yes. One log	45.573038161	-122.745603014
3 Lot 3	station 47	Upstream: 159 Downstream: 160 Upslope: 161	Himalayan blackberry (<i>Rubus discolor</i>), Common vetch (<i>Vicia sativa</i>), grasses	N, I	PA, U	Sand, gravel, concrete debris up to 5' long	None	Yes. Trace of wood debris	45.573143078	-122.745739834

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4 Lots 1&2	station 48	Upstream: 162 Downstream: 163 Upslope: 164	Himalayan blackberry (<i>Rubus discolor</i>), Scotch broom (<i>Cytisus scoparius</i>), Common vetch (<i>Vicia sativa</i>), grasses	N, I	PA, U	Sand, gravel, rock, concrete debris	None	Yes. Trace of wood debris	45.573231213	-122.745884650
4 Lots 1&2	station 49	Upstream: 165 Downstream: 166 Upslope: 167	Himalayan blackberry (<i>Rubus discolor</i>), Common vetch (<i>Vicia sativa</i>), Scotch broom (<i>Cytisus scoparius</i>)	I	PA, U	Sand, gravel, brick debris, concrete debris up to 6' long	None	Yes. Trace of wood debris	45.573314953	-122.746032674
4 Lots 1&2	station 50	Upstream: 168 Downstream: 169 Upslope: 170	Himalayan blackberry (<i>Rubus discolor</i>)	I	PA, U	Sand, gravel, brick debris, concrete debris up to 2' long	Monitoring well cluster RP-14 (Rhône-Poulenc wells)	Yes. One log	45.573397121	-122.746175291
4 Lots 1&2	station 51	Upstream: 171 Downstream: 172 Upslope: 173	Himalayan blackberry (<i>Rubus discolor</i>), Common vetch (<i>Vicia sativa</i>), Pacific willow (<i>Salix lucida</i>)	N, I	PA, U	Sand, gravel, concrete debris up to 3' long	None	Yes. Trace of wood debris	45.573478613	-122.746319874
4 Lots 1&2	station 52	Upstream: 174 Downstream: 175 Upslope: 176	Himalayan blackberry (<i>Rubus discolor</i>), Common vetch (<i>Vicia sativa</i>), Sitka willow (<i>Salix sitchensis</i>)	N, I	A, U	Sand, gravel, concrete debris up to 4' long	None	Yes. Trace of wood debris	45.573564089	-122.746473168
4 Lots 1&2	station 53	Upstream: 177 Downstream: 178 Upslope: 179	Himalayan blackberry (<i>Rubus discolor</i>), English ivy (<i>Hedera helix</i>), Common vetch (<i>Vicia sativa</i>)	I	A, U	Sand, gravel, concrete debris up to 3' long	None	Yes. Trace of wood debris	45.573643664	-122.746627180
4 Lots 1&2	station 54	Upstream: 180 Downstream: 181 Upslope: 182	Himalayan blackberry (<i>Rubus discolor</i>), Common vetch (<i>Vicia sativa</i>), grasses, English ivy (<i>Hedera helix</i>)	I	PA, U	Sand and gravel (1/4" to 2" diameter), some brick debris, concrete debris up to 3' long at toe of slope	Historical pilings approximately 10' north of station	Yes. Logs	45.573734953	-122.746766324
4 Lots 1&2	station 55	Upstream: 183 Downstream: 184 Upslope: 185-186	Bigleaf maple (<i>Acer macrophyllum</i>), Himalayan blackberry (<i>Rubus discolor</i>), Common vetch (<i>Vicia sativa</i>), grasses	N, I	PA, U	Sand, rock, brick debris near water line; concrete debris up to 3' long at toe of slope	Historical pilings	Yes. Trace of logs and wood debris	45.573835515	-122.746893253
4 Lots 1&2	station 56	Upstream: 187 Downstream: 188 Upslope: 189-190	Black cottonwood (<i>Populus balsamifera</i>), grasses	N, I	U, U	Sand with some rock and brick debris near the water line; concrete debris up to 5' long at toe of slope	Historical pilings in river approximately 50' beyond water line	Yes. Trace wood debris	45.573933903	-122.747006751
4 Lots 1&2	station 57	Upstream: 191 Downstream: 192 Upslope: 193-194	Black cottonwood (<i>Populus balsamifera</i>), Pacific willow (<i>Salix lucida</i>), Himalayan blackberry (<i>Rubus discolor</i>)	N, I	U, U	Sand with some rock and brick debris near water line, concrete debris up to 6' long at toe of slope	Historical pilings in river approximately 40' beyond water line	Yes. Logs	45.574042907	-122.747124082
4 Lots 1&2	station 58	Upstream: 195 Downstream: 196 Upslope: 197-198	Black cottonwood (<i>Populus balsamifera</i>), Pacific willow (<i>Salix lucida</i>)	N	U, U	Sand with concrete debris up to 4' long at base of slope	Historical pilings in river approximately 30' from water line	Yes. Trace of logs and wood debris	45.574149055	-122.747262113
4 Lots 1&2	station 59	Upstream: 199 Downstream: 200 Upslope: 201-202	Black cottonwood (<i>Populus balsamifera</i>), trace of Himalayan blackberry (<i>Rubus discolor</i>)	N, I	U, U	Sand with concrete fill material at base of slope	Historical pilings	Yes. Some logs and wood debris	45.574248536	-122.747409096
4 Lots 1&2	station 60	Upstream: 203 Downstream: 204 Upslope: 205-206	Black cottonwood (<i>Populus balsamifera</i>), Himalayan blackberry (<i>Rubus discolor</i>)	N, I	U, U	Sand	Historical pilings approximately 10' south of station	Yes. Logs and wood debris	45.574333015	-122.747561638
4 Lots 1&2	station 61	Upstream: 207 Downstream: 208 Upslope: 209-210	Black cottonwood (<i>Populus balsamifera</i>), Himalayan blackberry (<i>Rubus discolor</i>)	N, I	U, U	Sand	None	Yes. Logs and wood debris	45.574415636	-122.747693950
4 Lots 1&2	station 62	Upstream: 211 Downstream: 212 Upslope: 213-214	Black cottonwood (<i>Populus balsamifera</i>), Himalayan blackberry (<i>Rubus discolor</i>), Pacific willow (<i>Salix lucida</i>)	N, I	U, U	Sand and some rocks near the water line	None	Yes. Trace of wood debris and logs	45.574496942	-122.747801898
4 Lots 1&2	station 63	Upstream: 215 Downstream: 216 Upslope: 217-218	Black cottonwood (<i>Populus balsamifera</i>), Himalayan blackberry (<i>Rubus discolor</i>), Pacific willow (<i>Salix lucida</i>)	N, I	U, U	Sand	None	Yes. Trace of wood debris	45.574588926	-122.747943041

Appendix 2. Arkema site salmonid habitat survey observations and photographic log, July 6, 2010

Area	Station Number ^a	Photo Sequence Number ^a	Riparian Vegetation ^b	Vegetation Type Native/Invasive (N/I)	Active Channel Margin Armoring	Soil or Debris/Fill Type	Structures	Woody Material	Latitude	Longitude
4 Lots 1&2	station 64	Upstream: 219 Downstream: 220 Upslope: 221-222	Black cottonwood (<i>Populus balsamifera</i>), Himalayan blackberry (<i>Rubus discolor</i>), Pacific willow (<i>Salix lucida</i>)	N, I	U, U	Sand	Monitoring well cluster RP-13 (Rhone-Poulenc wells)	Yes. Trace of logs and wood debris	45.574682927	-122.748073814
4 Lots 1&2	station 65	Upstream: 223 Downstream: 224 Upslope: 225-226	Black cottonwood (<i>Populus balsamifera</i>), Himalayan blackberry (<i>Rubus discolor</i>), Pacific willow (<i>Salix lucida</i>)	N, I	U, U	Sand	None	Yes. Some logs and wood debris	45.574785830	-122.748198773
4 Lots 1&2	station 66	Upstream: 227 Downstream: 228 Upslope: 229-230	Black cottonwood (<i>Populus balsamifera</i>), Himalayan blackberry (<i>Rubus discolor</i>), Pacific willow (<i>Salix lucida</i>)	N, I	U, U	Sand with a few rocks	None	Yes. Some logs and wood debris	45.574890882	-122.748314943
4 Lots 1&2	station 67	Upstream: 231 Downstream: 232-233 Upslope: 234-235	Black cottonwood (<i>Populus balsamifera</i>), Himalayan blackberry (<i>Rubus discolor</i>), Pacific willow (<i>Salix lucida</i>)	N, I	U, U	Sand with a few rocks	None	Yes. Some logs and wood debris		
^a Station locations and selected photos are shown in Figure ES-1 through ES-5.										
^b Tentative plant identification.										
^c Station 00 was located at the top of the bank.										
Notes										
Bigleaf maple (<i>Acer macrophyllum</i>) = Oregon Maple										
N = Native vegetation										
I = Invasive/introduced vegetation										
N, I = Mixed native and invasive vegetation										
A,U = Armored, Unvegetated										
PA, U = Partially armored, unvegetated										
U, U = Unarmored, unvegetated.										